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GREAT FIRST CAUSE,

OR THE

SELF-MOVING FORCES OF THE UNIVERSE.

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“NECESSARY TRUTHS ARE THOSE OF WHICH WE CANNOT DISTINCTLY CONCEIVE
THE CONTRARY.”—Whewell.

1.—That there *must* be an endless duration and a boundless space, are necessary truths which cannot possibly be conceived to be otherwise than they are. These are necessary truths, whether any being exist to conceive them as such or not. Indeed, if there were no being in existence, the same unalterable and unchangeable necessity would characterize these truths. Endless space and duration cannot be created nor annihilated by any being, but their continuance has been and must be eternal. These truths do not admit of being proved, for that which has no beginning cannot be preceded by a cause, and where no cause exists, there cannot possibly be any foundation for reasoning. There can be no reason *why* space and duration are as they are, and yet we perceive a necessity for them to be as they are.

2.—That things exist in space, is a truth, though we cannot conceive it to be a necessary truth: for we can conceive of unoccupied space; indeed, we know, because of the phenomena of motion among things, that there must be space not occupied; otherwise, there would be no room for motion among bodies, and space would be filled with a boundless solid, imporous, and incapable of any change of place among its parts. The motion, therefore, of things proves that a part of space is unoccupied. If we conceive a part of space to be unoccupied by substance, we can as easily conceive of all space to be empty and void: therefore the existence of things in space, though a truth, is not a necessary truth. We can conceive of space as con-

taining either nothing or something: we can conceive it, either as containing one thing or an infinity of things: we can conceive it as empty, or partially occupied, or wholly filled. There is an infinite number of quantities of substance between nothing and an infinite boundless solid; and we can conceive either of these quantities as occupying space. We cannot conceive any necessity why one of these quantities should exist rather than another. We perceive that we ourselves exist, and that things exist external to ourselves, but we perceive no necessity for our own existence or for the existence of any thing else. Therefore the existence of things in space, and the quantity of things in space, are not conceived to be what they are by any irresistible necessity such as characterizes our conceptions of space and duration. No one can conceive of the non-existence of space and duration, but every one can conceive of the non-existence of things in space, or of the existence of any supposed quantity from nothing to infinity. The first are truths of necessity, the second are truths perceived to be what they are without perceiving any necessity for their being as they are: these may be termed *contingent* truths.

3.—Admitting the contingent truth, that something *now* exists in space, as nothing cannot produce something, therefore, it follows, as a necessary truth, that something must have *always* existed in space. Each part of this eternal something must occupy a finite space, having length, breadth, thickness, and figure. To occupy space, it must be solid, but solidity is only another name for matter; therefore, this eternal something must be matter. That which has no extension, nor parts, nor relation to space and duration, is called *immateriality*, which is the negative of all existence, or merely another name for nothing.*

4.—Having proved, from the fact, that something now exists, that something must have always existed, let us next enquire, Have *all* substances *eternally* existed? Upon this subject, mankind are divided. One class assumes that part of the substances in space were created out of nothing by the other part which they are irresistibly compelled to believe is eternal. The other class believe all substances to be eternal. We shall now proceed to show that the creation of one part of substance from nothing by another part, cannot be established by any necessity, experience, reason, analogy, or divine revelation.

First: The creation of a part of matter is not a *necessary* truth, for we can conceive of the eternal existence of *all* matter, as easily as we can conceive of the eternal existence of a *part* of matter. All the ancient schools of philosophy conceived every substance to be eternal; and it was not until modern times, that men conjectured otherwise. As has been already stated, we can conceive of space entirely devoid of matter, which shows that the existence of all things in space, though a truth, is not a necessary truth. If the very existence of all substances be not a *necessary* but only a *contingent* truth, surely, the beginning of existence or creation of any one substance cannot be conceived as a necessary truth.

Secondly: The creation of one part of substance by another, is not an *experimental* truth. No man has ever perceived any one substance created from nothing by another. In all the varied operations of nature, we perceive no creations nor annihilations: we only perceive changes wrought upon that which already exists. Therefore, no man can know from *experience*, that the creation of something from nothing is a truth.

Thirdly: Creation from nothing is not a truth derived from reason. All deductive reasoning is founded upon certain fundamental or first truths, called axioms or definitions, but there are no such first truths or axioms in relation to a creation from nothing; therefore, there can be no foundation or starting point from which we can commence a process of deductive reasoning to establish any such event. All inductive reasoning is that process by which we ascend from particular truths to those of a higher order and of a more general nature. Now there is nothing in the particular truths of nature which indicates the creation of any of her substances from nothing; hence, no such event can be established or inferred from induction. Therefore, creation from nothing is not a truth derived from reason.

* For further information upon this subject, see my treatise on the ABSURDITIES OF IMMATERIALISM.

Fourthly: The creation of substance from nothing is not a truth founded on *analogy*. Analogical reasoning is that process by which we infer that one event or thing *may* be true, because some other similar event or thing is known to be true. Now we know of no event or thing to be true which resembles, in the least, the creation of substance from nothing, therefore, there is no analogy for such an event.

Fifthly: The creation of something from nothing is not a truth founded on *divine revelation*. We learn from the revealed truths, which God has been pleased to give to man, that the sun, moon, stars, heavens, earth, and all things were created by him, but we nowhere learn in those sacred oracles that any one of these things were created from nothing. The original words rendered in our language create and make, are synonymous terms, signifying, as we have every reason to believe, the formation of things out of the original elements; at least, we are nowhere informed, in revelation, that these words had any other meaning. It has been said, that as God created *all things*, and as elements are *things*, therefore he must have created them also. But if all the elements be included among the things created, then the Deity must have created the elements, or parts of which he himself consists, which would be the very height of absurdity, for it would suppose him to exist and not to exist at the same time, hence the phrase "*all things*" cannot mean the elements, but only the "*all things*" that are created of the elements. Therefore, the creation of something from nothing is not a truth founded on divine revelation. If, therefore, the creation of one part of substance from nothing cannot be established by *necessity, experience, reason, analogy*, nor *divine revelation*, it cannot be a truth, or, at least, we have no means left by which we can determine, or even infer that it is a truth, and it should be treated as a wild speculation, or vague conjecture without the least shadow of foundation.

5.—As there is no evidence whatever in favour of the creation of any substance, we are justified in believing that the elements of every substance existed eternally. We can trace back the history of the earth for about six thousand years, or to the period of its formation. During this time countless millions of organizations, both vegetable and animal, have been constantly taking place. But in every case which has come under observation, the beings, organized, have been made out of pre-existing elements. In the mineral kingdom, a vast variety of new compounds have been formed, but in every instance that has come under the inspection of man, these compounds have been made from something, and not from nothing. All the miracles since the creation, that have been wrought by the power of God, have been operations upon materials already existing. God has not, since the history of man, created any new elements, and exhibited them as a testimony that such an event is possible. When our Lord made wine at the wedding feast, it was not necessary to create it from nothing: he required the vessels first to be filled with water, after which he created or made the wine, which he could easily do by miraculously combining other ingredients or elements that already existed in great abundance. When he fed the multitudes with bread and fish, it was not necessary to make these compounds from nothing; when every element which enters into their constitution, existed plentifully all around him.

If we go back to the creation, we find that the corporeal bodies of the first man, and of the first vegetables, and animals were made, not out of nothing, but out of the ground. If, then, all men, beasts, serpents, fowls, fishes, trees, herbs, and grass, were created and made out of the ground, or out of the elements, why should we suppose the creation of the earth to be an exception to the general law? Is it any more difficult to create an earth, out of pre-existing elements, than it is to create various compounds, vegetables, and animals out of these elements? If we were to find a general law, to hold good in almost an infinite variety of cases, without even one-observed deviation, would it not be a violation of every principle of sound judgment not to apply that general law to any other particular case of a similar nature? If we were to find that the waters in every fountain, spring, stream, river, and lake throughout the whole world, were formed of oxygen and hydrogen, combined in definite proportions, would we not, at once, without experiment, expect that the waters of the great ocean, were made of the same elements? And would not a man be considered foolish or insane who should conjecture, that the waters of the ocean were an

exception to this general law? If the various compounds, vegetables, and animals upon the surface of our globe are known to be governed by the law of gravitation, it would be perfectly consistent to extend the same law to the whole earth, unless some reason could be shown why the law should not be thus extended; in like manner, if the various compounds, vegetables, and animals are known to be made of pre-existing elements, it would be perfectly consistent to extend the law to the earth itself, and to conclude that it was made of pre-existing elements also, unless some reason can be rendered why such an extension should not take place.

Perhaps the objector may say, that the law of creation from elements ought not to be extended to the earth, unless we can be certain that elements did previously exist. To this, we reply, that the extension of the law to the earth would be in accordance with every rule of inductive reasoning, unless it can be shown that the elements had no previous existence; and this cannot be shown.

When God, at the creation of the earth, said, "Let there be light, and there was light," we have no authority whatever for supposing that light was then created from nothing. Indeed, we know that light must have existed in connexion with water in a latent state before that time; for before that event, the waters of the great deep existed and darkness was upon its face; now these waters could not have existed in the form of water without electricity, and heat, and light were united with them: take away either of these three latent principles, and water would cease to be water, and its elements would exist in altogether a different condition. That light exists in water in a latent state, is a fact that can be demonstrated by chemists at any time. Therefore, light must have existed, though in a latent state, in the waters of the great deep, before God said, "let there be light." In this saying, God did not perform an act of creation from nothing, but only commanded the already existing light to appear or render itself visible where darkness before reigned. There are two ways in which this command could be obeyed: first, the already existing light could come from the distant regions of space, and illuminate the face of the waters, or second, the latent light which must have existed in connexion with the waters and other substances could be set free and thus be rendered visible.

On the fourth day, it is said that "God made two great lights," which he placed in the firmament to rule the day and the night. When man makes light, he does so by operating upon the substances of nature so as to render the latent light visible, and in no instance does he create the light from nothing. Therefore, reasoning from analogy, we have good grounds for believing that God makes light the same as man does, that is, by operating upon the elements in such a manner as to set this latent principle free, and thus make it visible; at least, we have no reason, nor analogy, nor any other evidence for conjecturing that he makes it in any other way.

Astronomers have demonstrated by actual observation and mathematical calculation that light existed thousands of years before the creation of our earth. It has been determined that light flies with the velocity of about twelve millions of miles every minute: it has also been ascertained from the known power of the telescope, and from other considerations, that there are bodies in the universe, situated at such immense distances, that it would require their light several hundred thousand years to traverse the space between them and our world: it follows, then, of necessity, that the light by which those distant worlds are now rendered visible must have left them thousands of centuries before our earth was formed. In almost every point of space to which the telescope has been directed, countless millions of inconceivably distant shining worlds are to be seen. But what does all this prove? It proves that by far the greatest portion of the visible universe existed ages before the organization of our little globe. When we look upon the widely extended field of existence, we are apt to imagine that we see worlds as they *now* exist, but this is not so; the *present* existence and relative position of the distant bodies of the universe cannot be seen. By the aid of light we only see the *past*, and not the *present*. Light does not inform us whether the most distant luminous bodies which can be seen are now in existence or not. Light enables us to see them exist thousands of ages ago, but it gives us no indications that they have existed as luminous bodies since that period.

If the light of all worlds were created only six thousand years ago, then it would be impossible to see any of them over thirty-seven thousand billions of miles distant;

for light could not travel over that distance in six thousand years: all beyond that would be invisible, and would remain so, until their light had time to reach us. But it is believed by astronomers that the space-penetrating power of their telescopes enables them to extend the radii of the visible universe several hundred times farther than what light would travel in six thousand years. If this be true, then, there must have been several million of times the amount of luminous worlds in the exterior strata of the visible universe, than there is in the interior whose light could have reached us since the creation. And, consequently, all the infinity of worlds, and clusters of worlds, whose light has beamed upon us from those remoter regions, must have existed long anterior to the creation of our globe.

Again, if the light of all worlds had been created at the same time, namely, six thousand years ago, several hundred new stars must have appeared every night since the invention of the telescope, for the boundaries of the visible universe would be enlarged, that is, would recede from us at the rapid rate of about seventeen thousand millions of miles every twenty-four hours; and all the stars contained within each of the successive spherical strata of that thickness would be successively rendered visible until their remoteness in the immensity of space should defy the power of our best instruments to detect them.

Now, can we, for one moment, suppose that within the comparatively little regions, occupied by our stellar universe, no light existed until six thousand years ago, when we are almost irresistibly compelled to admit that there previously existed in the infinite regions beyond a vast immense ocean of luminiferous fluid? We can come to no other conclusion, but that worlds, and systems of worlds, and universes of worlds existed in the boundless heights and depths of immensity before the foundations of our earth were laid. Whether our earth was created out of the ruins of some more ancient world, or whether it was formed out of elements which had never before been organized, is a mystery which the divine oracles do not reveal. But from geological inquiries it is highly probable that the elements of our globe have undergone a series of organizations and disorganizations, during countless ages that are past, compared with which the age of our present world forms but a link in the endless chain. Analogy indicates that worlds may be organized out of pre-existing elements as well as plants and animals. Analogy also indicates that the substance of all worlds may be eternal as well as the substance of which the Deity consists. Supposed objections have been raised by learned philosophers against the eternity of matter, founded on the atomic or molecular constitution of what they are pleased to term the elements: these objections will be considered and answered, after we have investigated the nature and properties of matter. In the mean time, we shall, in our investigations, adopt the theory of *the eternal duration of the elements of all matter*.

OF MATTER INDEPENDENT OF ITS POWERS OR FORCES.

6.—The true definition of Matter is, that which occupies space, and which cannot be made to occupy a greater or less amount of space. We cannot possibly conceive of the existence of God, or spirit, or any other kind of matter without conceiving such existence to be in space. Indeed, it is a *necessary* truth, that God and all other beings or substances which exist, *must* exist in space, and *must* occupy a constant amount of space, and *can never*, by any possibility, occupy a greater or less amount of space than what they *always* have done. Therefore, the occupied and unoccupied portions of space have been constantly the same from all eternity, and they must remain the same to all eternity—there can be no increase or diminutions of either. Bodies can be increased in their exterior dimensions by increasing their interior pores, or they can be decreased by decreasing their pores; but in either of these operations, the absolute space, occupied by the particles remains unchangably the same.

The *quantity* of matter in any given body can only be determined by ascertaining the amount of space which it occupies; but this is a problem which no one has, as yet, been able to solve. If all matter were equally heavy, then we might determine the quantity by the weight: but the force called weight is not a necessary force: we therefore do not know that all substances possess this force; or if they possess it, we do not know that they possess it in equal degree: we do not know but there may be bodies

which have a tendency to recede from all other bodies; how, under such circumstances, could their quantity be ascertained by the weight? When Elisha made the axe to swim, he did so by diminishing its weight without diminishing its quantity. When Peter walked upon the water to meet his Saviour, the weight of his body was greatly diminished, but the quantity remained the same. When Jesus ascended to heaven with his risen body of flesh and bones, the weight of his body must have been diminished far more than when he walked on the water, and yet the quantity of matter remained the same as when he first arose. Who is able to determine whether those substances which produce the phenomena, ascribed to light, heat, and electricity, possess the force called weight or not? Weight can never be an indication of quantity, until it can be determined that substances occupying equal spaces have equal weights.

It has been generally supposed by philosophers of the present age that Inertia, as well as weight, is a true indication of quantity. Inertia is defined by some philosophers to be the resistance which bodies offer to a change of state. This resistance or inertia is found by Newton's pendulum experiments to be proportional to the weight. The velocity of a falling body in free space is directly as the weight and inversely as the inertia. Therefore, so long as weight and inertia are proportional to each other the velocity must be constant. This Newton found to be true in the falling of all kinds of substances. Their velocities were equal. But neither inertia, nor weight, nor both together, proves that the *quantity* of matter is proportional to either. When it can be proved that substances, occupying equal spaces, have equal inertia or equal weight, then inertia or weight can be taken as the true measure of *quantity*, but until then, the assumption of weight or inertia, as a true measure of quantity, is entirely hypothetical. For aught we know to the contrary, equal quantities of matter may possess unequal weights. There may be as great a quantity of matter in a cubic inch of water as there is in a cubic inch of quicksilver; and yet the latter is many times heavier than the former. If a cubic inch of iron were to have its weight increased to one hundred or one thousand pounds, (if its inertia were increased in the same proportion,) its velocity in falling would be the same as it is now, and its quantity of matter would be the same. Or if a given quantity of iron should have its specific gravity or weight diminished, as in the case of the axe which Elisha made swim, (if the inertia were diminished in the same proportion,) its velocity in falling, or its rate of oscillation in the form of a pendulum would be precisely the same as before. In all such cases of the increase or diminution of the weight and inertia, the quantity would remain undisturbed, and therefore, we are not sure, that either the weight or inertia of bodies, determines their quantity of matter. Quantity, when applied to forces, such as pressure, weight, resistance, and the like, may be known; but when applied to matter, in determining the amount of space occupied by any given body, it remains, as yet, unknown. We can say that a pound of lead and a pound of cork contain equal quantities of force, called weight, but we have no way of determining whether they contain equal quantities of matter or not; and so with all other substances.

Professor Whewell has written an essay entitled, "Demonstration that all matter is heavy."* In this essay, he conjectures that it is a *necessary* truth that all matter must have weight; for without it, he says, that there would be no mode of measuring the quantity of matter. This we admit: but this is not a necessary truth: it is not necessary that we should know the quantity of matter, if we only know its quantity of force, if it have any. But he supposes that if all bodies have not weight, "the rest and motion, the velocity and direction, the permanence and change of bodies, as to their mechanical condition, would be arbitrary and incoherent: they would not be subject to mechanical ideas; that is, not to ideas at all: and hence these conditions of objects would in fact be inconceivable." We reply, that we can conceive of bodies, having no weight, and yet conceive them as possessing inertia, and subject to mechanical conditions when operated upon by external forces. Although inertia is proportional to the weight, so far as experimental observations have extended, yet we cannot perceive this to be necessarily and universally true. If the inertia of bodies were to remain constant while their weight varied, they would certainly be subject to

* Phil. of the Induc. Scien., Vol. ii., p. 624, second edition.

“mechanical conditions” and “mechanical ideas;” for instance: experimental observations teach us, that falling bodies in free space near the surface of our globe, gain a velocity of about thirty-two feet per second, now if they were to be deprived of one-half of their weight, while their quantity of matter and inertia remained the same, they would acquire a velocity of only sixteen feet per second. Other conditions remaining constant, the velocity acquired would be as the weight, and when the weight became nothing, the velocity would be reduced to nothing. Such a condition of things is easily conceivable, and, therefore, the assertion that all bodies must have weight is not a necessary truth. That any bodies have weight is only known to be true so far as observation teaches us.

If, then, we can conceive of matter independent of the force called weight, we can conceive of it independent of all other powers or forces: for instance, the *cohesion* of the parts of matter to each other is not necessary to our conceptions of matter. The cohesive force, therefore, cannot be contemplated as *necessary* to the existence of matter. Matter, contemplated independent of this force, must necessarily be divisible without limits. The atomic theory requires a cohesive force to bind together the parts of atoms, hence, the conception of atoms, without force, is impossible, but the conception of matter, without force, includes no inconsistency. If space can be geometrically demonstrated to be infinitely divisible, matter which occupies space, if it have no cohesive force, must be infinitely divisible, as may also be geometrically demonstrated. The parts of these particles, however small, may exist in contact without the least cohesion, and the least imaginable force would separate these parts asunder with the same ease that the same force would move either of them from a state of rest to a state of motion in free space. However far the division of a particle of matter be carried, the parts could never be reduced to nothing—they would always be larger than a point, and therefore would occupy space, and the sum of all the parts would occupy as much space as the whole particle previous to division.

When we conceive of matter without force, we simply conceive of it as something that occupies space, having no tendency to approach to, nor recede from, other matter, having no cohesion among its parts, consequently divisible without limits, possessing no chemical affinities, having no tendency to change its state, whether of rest or of motion, and having no resistance to a change of state, or, in other words, no re-action. This would be a true definition of matter without powers or forces. Such matter could exist only in two states: one would be a state of rest, the other would be a state of uniform motion in straight lines. Without cohesion a rotatory motion could not take place; without force of some kind a curvilinear motion could not exist; without force the direction of a motion could not be altered; without force a velocity could not be increased or retarded. No force is necessary to sustain a uniform motion in a right line, but if such a motion had a beginning, it must have originated by an impulsive force. But we can conceive of eternal uniform motion: in such a case it would not be an effect, but a *state*, therefore, such a state would be as conceivable as a state of eternal rest.

7.—OF FORCE.—Such a thing as a uniform motion in right lines, or a state of absolute rest, is unknown in the universe: all matter is constantly exhibiting a change of state, therefore, all matter must be under the influence of a Force. Our minds are so constituted that we cannot conceive of Force existing separate and abstract from substance. All Forces must be the Forces of something, and that something, as it occupies space, *must* be matter. As Forces *now* exist, and as inert matter cannot originate Force, therefore some Force must have been eternal. All other Forces must be the effect of this eternal Force, or they must also have existed eternally. Mankind are divided in their views concerning the existence of the Forces of nature: that class who conjecture that a part of the substances in space were created out of nothing, by another part, also conjecture that their Forces were created and had a beginning; but that class who believe that all matter is eternal, also believe that all Forces are eternal. When I speak of the term Forces, I do not mean those secondary causes which, by many, are frequently called forces; but I mean those original qualities of matter by which it changes its own state or condition. Secondary causes are not Forces, but effects. Effects are originated either directly or indirectly by Forces; but Forces can, in no case, be effects, unless they were created. The creation of

Forces cannot be established by reason, experience, nor divine revelation: it is a wild, vague speculation, without the least foundation. All classes admit that there must be a Force that has eternally existed: if one Force must have eternally existed, why may not all other Forces be eternal also? Analogy would say, as one Force is known to be eternal, that the eternity of all the others is not only possible, but probable.

8.—OF THE ACTION OF FORCES.—As Forces are the qualities of substances, and exist only in connexion with matter, when they act, they must act where they exist. No particle of substance can act *where* it is not, any more than it can exist *when* it is not. A particle of matter, existing separate from all other substances, cannot exercise its force externally to its own surface: it cannot attract nor repel surrounding particles, nor produce the least effect upon them in any way: it can only act upon its own parts, and upon its own self as a whole to produce motion, or a change of motion. We have already shown that matter without force would be infinitely divisible: each of these infinitely small parts possesses the quality of Force by which it can move itself, or cause itself to press against other parts with which it may be in contact. Millions of these parts may press themselves together, and form an atom of substance of any shape or figure, and of any degree of hardness such as shall be the best adapted to its future purposes and designs. The Force that holds together the parts of an atom is not an *attractive* Force, but it is the force of *pressure*: each part presses itself towards every other part. Attraction would require each part to be entirely passive, having no power whatever over itself, and yet possessing the extraordinary and impossible power of pulling every part towards itself. As bodies cannot attract each other whether in contact or at a distance, so it is equally impossible for them to repel each other. Repulsion would require a body to be in one place, and to exert its force in another place: if a particle could not move itself towards nor from another particle, how much more impossible it would be for it to move another particle towards or from itself: if Forces cannot act where they exist, so as to produce self-motion, they certainly cannot act where they do not exist so, as to produce the motion of something else.

9.—OF SELF-MOVING MATTER.—We are aware that the various phenomena of the universe are referred by philosophers to the operations of *inert* and *unintelligent* matter: they have supposed *inertia* to be a property of all matter, and, therefore, they suppose all matter incapable of changing its state whether of rest or motion. If it be granted that matter is inert or inactive, it must necessarily follow, that inert matter at rest could never put itself in motion, and that inert matter in motion could never accelerate nor retard that motion, nor change its direction. But all matter with which we are acquainted appears to be highly active; every particle has a tendency to approach towards every other particle. Now, we ask, how can matter be inert, and yet exhibit activity? Activity and inertia are directly opposed to each other; where one exists the other cannot exist, any more than light and darkness can exist together. Inertia is the absence of activity, and, therefore, the two cannot co-exist in the same substance. Therefore, if matter be inert, it must be forced by something that is not inert towards all other matter. But, says the philosopher, this tendency is produced by attraction: one particle of matter attracts another, and thus moves it towards itself. But, we ask, how can one mass of matter attract another and yet be inert? Is not attraction only another name for action? And if a body can move something at a distance towards itself, it must be more highly active than if it merely moved itself. That which can originate motion and accelerate it cannot possibly be inert. Therefore, if the force, called attraction, be admitted, inertia must be excluded. On the other hand, if inertia be admitted, attraction must be excluded: they cannot both belong to the same substance, for inertia is the negative of attraction and all other active qualities.

10.—We have stated above that all matter *appears* to be highly active; but this *appearance* may be entirely delusive: a part of matter may be entirely inert, and only act as it is acted upon by a substance with which it is in contact. One thing is certain, if there is any inert matter in the universe, it has not yet been discovered to be such by its inactivity. If its existence be assumed, it must exist in union with active matter, which forces it to act according to fixed laws; if it existed separate and apart from active matter, we should discover it to be inert, by its having no power to

approach to nor recede from other matter—by its exhibiting no cohesive or chemical forces—and by its incapability of exerting any law of force whatever. As we have never discovered any abstract inert substances, therefore, if such substances do exist, they must exist in union with active substances, and while in this union their *inertia* could not be discovered; for they would be compelled, while in a state of union, to act as the active substances act. Every particle of inert matter in the universe (if any such matter exist) must be enveloped by an active substance, which moves itself and all that is connected with it, according to fixed laws. There is no way in which active matter could unite with inactive matter without producing motion only by enclosing it on opposite sides; for if a particle of active matter were to press against only one side of an inactive particle it would produce an accelerated motion in the direction of the pressure, unless another particle of active matter on the opposite side of the inert particle should press in the opposite direction with equal force. But there is no necessity for supposing inactive matter to be enclosed in active matter; its only effect would be to enlarge its magnitude; the interior would be without cohesion, and only be kept in its place by the exterior cohesive shell: but if the interior parts of a particle be the same as the exterior, then every part must be composed of active matter, and such a thing as inactive matter would be unnecessary. As inactive matter has never yet been discovered, it is impossible for us to know whether such matter exists. All the materials of the universe with which we are acquainted exhibit actions which in all cases are produced by self-moving forces, for no other forces do or can exist.

11.—Those particles of this self-moving substance which constitute the worlds, and which are generally known under the name of *ponderable* substances, do not act at random, but act systematically and intelligently according to the following law:—

Every particle of this kind has a tendency to approach every other particle of the same kind with a force which varies inversely as the square of the distance.

All the phenomena of universal gravitation can be far more simply explained by this law of *self-moving* particles, than by assuming the absurd hypothesis of *attracting* particles. Even though attraction were possible, (which we by no means admit) yet, it would be infinitely more simple for a particle to move itself, than it would be to move everything but itself. It has generally been supposed that there is something absurd in the idea of a substance moving itself; but how much more absurd would be the idea of a substance so entirely inert that it could not move itself, but yet able to move a universe of substance towards itself! How can a substance which cannot move itself, move other substances which exist at a distance? Yet this great absurdity is embraced in the attracting hypothesis. Every person, with the least reflection, will admit that a substance can more easily move itself than it can move anything else. The difference between the *Self-moving Theory* and the *Attracting Hypothesis* is to be found, not in the resulting phenomena, for they are and must be the same, but in the *causes* which produce these phenomena. The causes assumed to explain the phenomena are diametrically opposite in their nature, as may be more fully understood by the following contrast:—

The *attracting hypothesis* assumes that a *helpless, passive, inert, particle*, has the power of acting in every place where it is not present, but has no power of acting where it is present.

The *self-moving theory* assumes that an *active particle* has the power to act where it is present, but no power to act in any place where it is not present.

Again, the *attracting hypothesis* assumes that an inert particle has the power to move every substance in the universe towards itself, but has no power to move itself in any direction.

While the *self-moving theory* assumes that an active substance has the power to move itself towards other substances, but has no power to move any external substance towards itself.

One theory represents attracting particles as the centres or origin of *pulling forces*, extending, like the radii of a sphere, in all directions, millions of miles from their origin.

The other theory represents self-moving particles as the centres or origin of *self-moving forces*, which in no case extend beyond the surfaces of such particles.

The one requires forces to act everywhere, but in the substance where they exist; the other requires forces to act only in the substance.

The one requires an inert particle to move a universe of worlds; the other requires an active particle only to move itself.

The one requires particles to act only as they are acted upon; the other requires particles to act of themelves.

The one makes it impossible for particles to change their own state, whether of rest or motion; the other gives power to particles to change their state of rest or motion according to definite laws.

12.—All theologists who adopt the attracting hypothesis, require a *Great First Cause*, who not only gives laws to blind, unconscious, unintelligent matter, but also forces it to act according to those laws.

All theologists who shall adopt the self-moving theory will require the Great First Cause itself to consist of conscious, intelligent, self-moving particles, called the Holy Spirit, which prescribe laws for their own action, as well as laws for the action of all other intelligent materials. An unintelligent particle is incapable of understanding or obeying a law, while an intelligent particle is capable of both understanding and obedience. It would be entirely useless for an Intelligent Cause to give laws to unintelligent matter, for such matter could never become conscious of such laws, and therefore would be totally incapable of obedience. An intelligent cause cannot force unintelligent matter to act in any manner without the aid of intelligent matter in actual contact with it. As far as our observations extend, the materials of the universe exhibit a constant succession of phenomena according to fixed rules. Now these materials must either act themselves, being intelligent and possessed of a self-moving power, or, if unintelligent, they must be acted upon by the contact of intelligent materials; in the latter case the intelligent materials must be, at least, equal in quantity to the unintelligent, and must be as extensively dispersed, uniting with and acting upon each unintelligent atom, wherever order or a definite law characterizes the phenomena.

The amount of intelligent matter in space must be inconceivably great; it exists in vast quantities in all worlds, regulating and controlling every department of nature according to fixed laws. It is evident that each particle must have not only perceived the utility of such laws, but must have mutually consented to obey them in the most strict and invariable manner.

All these self-moving materials must be possessed of a high degree of intelligence, in order to obey with such perfect and undeviating exactness the innumerable laws which obtain in the universe. There is no disobedience on the part of the materials. Under the same circumstances they invariably act alike. What depth of knowledge, for instance, is requisite in order for particles to obey the single law of "Gravitation." Each particle must not only know the exact quantity of matter existing in all directions from itself, but must also know its exact distance from every other particle, that it may know, during every moment, how to regulate the intensity and direction of its own motions, according to the law of the "inverse square of the distance." Obedience to this one law on the part of material particles requires in them a degree of intelligence far beyond our utmost comprehension. The philosophy of modern times, however, does not admit that material particles possess intelligence or knowledge: it deprives matter of all understanding and will, making it obey certain laws unconsciously and blindly, not perceiving its own acts nor their results, neither its own existence. Herschel, in his celebrated "Discourse on the Study of Natural Philosophy," (Article 27,) says, "To obey a law, to act in *compliance* with a rule, supposes an understanding and a will, a power of complying or not, in the being who obeys and complies, which we do not admit as belonging to mere matter. The Divine Author of the universe cannot be supposed to have laid down particular laws, enumerating all individual contingencies, which his materials have understood and obey,—this would be to attribute to him the imperfections of human legislation,—but rather, by creating them endowed with certain fixed qualities and powers, he has impressed them in their origin with the *spirit*, not the *letter*, of his law, and made all their subsequent combinations and relations inevitable consequences of this first impression."

It will be perceived that this eminent philosopher supposes that blind, unconscious,

unintelligent materials were "impressed in their origin" with the "spirit" of the law, and "endowed with certain fixed powers," and that by virtue of this *impression* and *endowment* they blindly perform all their subsequent operations. But we ask, what is this "spirit of the law?" What are these "fixed powers?" If they are not *intelligent powers*, why do they cause materials to act intelligently? If these "powers" belong to material particles, and are the ultimate causes of their acting in conformity with intelligent laws, then these "powers" must be *intelligent* "powers," and the material particles which possess them must be *intelligent* particles. We can only judge a thing to be intelligent by its intelligent acts, and wherever we perceive such acts, we ascribe intelligence to the being or agent that performs them. If the "powers" with which material particles are "endowed" do not act at random, but act with order and regularity, and strictly obey wise and intelligent laws, it would be a violation of every law of our judgment not to attribute intelligence to them—and a degree of intelligence, too, sufficiently great to comprehend and obey the most subtle and intricate laws that are devised for their rule of action. We consider that the *primary powers* of all material substance must be *intelligent*; and that all *secondary* powers are of a mechanical nature, being derived from the pre-existing intelligent powers inherent in particles. Unintelligent primary powers are not only inexplicable but inconceivable! Such powers do not and cannot belong to materials! Primary powers, primary forces, and intelligence, are synonymous terms when applied to particles. Substances without intelligence can have no powers, no forces, no properties of any description: they can neither approach to, recede from, nor combine with each other, nor obey any other prescribed law. *Unintelligent* particles, then, is only another name for *inert* particles.

13.—Intelligence, by some writers is supposed to be not an ultimate cause, but the effect of organization—the result of the operation of some anterior powers. But organization could not take place—anterior powers could not exist independently of intelligence, which must be the first moving cause, anterior to all other causes or effects. Hence, as intelligent powers are antecedent to all other powers, they must have been *eternal* as well as the materials to which they belong. For instance, we conceive the sublime and glorious personage of the Deity himself to consist of a certain number of the most superior and most intelligent material particles of the universe, existing in a state of union, which *union*, if not eternal, must have been the result of the anterior and eternal powers of each individual particle. And as no enlightened Theist will, for a moment, deny the eternity of these powers which are inherent in the particles of which the Deity consists, why not follow the analogy, and say, that the powers of all other material particles are *eternal* also? Why suppose the intelligent powers of one substance eternal, and require an origin for the intelligent powers of all others? Indeed, we consider it just as impossible for such powers to be originated as it is for the materials themselves to have had an origin. If matter exist without the capacities of intelligence, it must have existed eternally unintelligent, and must forever remain in that state. We do not consider it possible for the Almighty (though we speak with all due deference to his Superior and Transcendent Powers) to create an intelligent power, or to impart it to materials where it does not already exist. On the other hand, matter once possessed of an intelligent capacity must have always possessed this property, and must forever continue to retain it. As there is no being, as we conceive, able to originate this power, so there is none, as we also conceive, able to annihilate it. Hence the amount of matter possessing capacities for intelligence in the universe, be it great or small, is constant, and can never be increased or diminished in the least degree.

All philosophers, as we have already seen, who do not believe in the *eternity* of *all the substances* of nature, are yet compelled to believe in the *eternity of that part of the substances* of nature of which the Deity consists. And they also suppose, almost without an exception, that this substance is omnipresent; Sir Isaac Newton, both in his "Optics" and "Principia," has very definitely stated this doctrine. Clarke, Dugald Stewart, Sir. John Herschel, and numerous other philosophers and divines, have followed in the footsteps of Newton, and毫不犹豫地 declared their faith in the omnipresence, not of the virtue alone, but also of the *substance* of the Deity. And as it would be not only inconsistent, and opposed to every principle of sound philosophy,

but absolutely impossible for any one particle of this substance to be in two or more places at the same instant; we are, therefore, the moment we admit the omnipresence of this substance, irresistibly compelled to also admit that it exists in inexhaustible quantities; not that it absolutely fills all space, for then, there would be no room for any other substance, neither room for motion. Therefore, the substance of which the deity consists, must, not only exist in immense quantities, but its particles must be in a greater or less degree separate and detached from each other by intervening spaces, which is an essential condition necessary to the vast variety of motions which are constantly taking place among these parts. Now these particles of this omnipresent and eternal substance must each have size and shape. And here a question suggests itself of no small moment in its various bearings on several departments of our knowledge; namely, whether the *magnitudes* and *figures* of these and all other self-moving atoms have remained unalterably the same throughout all past time? At the first suggestion of this question some would naturally suppose the answer to be far beyond the utmost stretch of our present limited faculties; while others, perhaps, might hastily answer it in the affirmative. But there are various considerations which render it almost certain that there have been great and important changes wrought both in the magnitudes and figures of atoms, that is, that they are very different in *size* and *shape* NOW from what they were *ORIGINALLY*. The inconceivable smallness of atoms is admitted on all sides. And no philosopher has been able to descend the scale of magnitude sufficiently far to determine the size of the atoms of any substances whatever. If any atoms exceeded certain given dimensions, their sizes could be detected. But why this invariable and constant *smallness* pervading the endless number of atoms of each substance? If the magnitude of atoms were *constant* and *invariable* from all eternity, why should they be confined within such narrow limits of minuteness? Why not some atoms be of immense size, occupying millions of miles of space? Why not exist in every possible variety of magnitude that might be imagined between nothing and infinity? If the magnitude of atoms are eternal and invariable, there could have been nothing to determine their sizes or figures; and there would be the highest degree of probability to believe that the sizes and figures of different atoms would vary from each other in endless dissimilarity. Similarity of magnitudes and similarity of figures would scarcely exist, or if it existed it could only exist by chance, and to a very small extent. Therefore, in assuming that the magnitudes of atoms are eternally invariable, we, at once, deprive them of all cause or reason for being small or great, or for being of one size rather than another. But if we assume the possibility of self-moving atoms changing their own size and figures, we, at once, perceive a cause and reason for originating similarities of magnitudes and figures—for introducing smallness rather than greatness—we can perceive why the present minuteness so universally prevails. Inconceivable *smallness*, as well as *similarity* of size and figure, seems to be absolutely indispensable to the present operations of nature—such, for example, as the present process of organization—the phenomena of light and vision—the variations of temperature, with innumerable other processes—all of which require a *smallness* and *similarity* of particles, such as at present obtains, so far as we have extended our researches. If, then, of the infinite classes of magnitudes which might have existed, each being, equally possible, *certain ones* have been chosen which appear to be the *only ones* adapted to the present useful operations of nature, how can we for a moment doubt that the *selection* was made by a *wise, designing, intelligent cause*, which originated these particular classes of magnitudes to accomplish certain useful ends by their subsequent operations? From these considerations we are compelled, by the most irresistible evidence, to believe that the *present minuteness* and *endless similarity* of parts, which so universally obtains in all self-moving substances, had an origin. Not that the substances had an origin, but only their present similar magnitudes and figures. And we are also compelled to admit that the *power* which produced this *present* condition must have eternally existed in the substances prior to their assuming their present form. By this eternal self-existent power resident in the dissimilar atoms of substances, those atoms which were too large to be useful in the future economy of nature could divide and sub-divide themselves until their dimensions were of an appropriate size; while such as were too small could unite themselves together until they attained a size requisite for their

future usefulness. And thus originated that endless similarity—that apparent equality of size and figure—that exceeding minuteness which so universally characterizes all the atoms of the same kind of substance.

This exact and similar likeness, pervading every atom of the same kind, has been supposed by Sir John Herschel, Whewell, Prout, and other great philosophers, “to effectually destroy the idea of an *eternal self-existent matter*, by giving to each of its atoms the essential characters, at once, of a *manufactured article*, and a *subordinate agent*.^{**} But there is not the least evidence for supposing that the *substance* of a “manufactured article” must have necessarily been created. Is not every vegetable a “manufactured article”? Yet who will presume to draw a conclusion that vegetables were “unmanufactured” from nothing? All will admit that they were “manufactured” from the prior materials of our globe. So the *present minuteness* of all atoms of the same kind—the equality of their magnitudes—the exact similarity of their figures—and their most perfect resemblance in all respects, show, most unquestionably, that these characteristics are not eternal, but were “manufactured,” not from *nothing*, but from an *eternal pre-existing substance* which (we have the highest degree of probability to believe) once existed in almost every possible variety of *size* and *form*, without *likeness*, or *resemblance*, or *order*, only as might have existed in some few instances by chance.

Is there any absurdity involved in the idea of manufacturing small atoms out of large ones, as, for instance, small shot are manufactured out of large bullets? Can it be proved that the prior large atoms are necessarily indivisible? or that their parts are, by their own power, held so firmly together that they cannot, by the same power, separate themselves from each other? Is the *union* of the *parts* of each atom governed by powers that are uncontrollable by its own will? are these powers *antecedent* to the power of will? If, then, the parts of atoms are not bound together by any powers that are antecedent to, or distinct from, the free will, or self-moving powers of the atoms themselves, it is evident that they can manufacture smaller atoms out of their own parts of such sizes and forms as shall be best suited to their future purposes and designs. And by the same free will or self-moving powers, those atoms which are too small for future uses can unite themselves together in sufficient numbers to accomplish any future object which they may have in view. To manufacture *certain definite sizes and forms of substance from nothing* is utterly inconceivable! But to manufacture *such sizes and forms from something* is not only conceivable, but consistent with the whole analogy of nature.

14.—But let us trace this supposed powerful argument for the creation of matter to its legitimate and ultimate bearing. Let us confine the reasoning with its erroneous conclusions exclusively to the self-existent, omnipresent substance of which God consists, and we shall still more clearly perceive the absurdity of the consequences. Herschel, in the article from which we have already quoted, says, “when we see a great number of things precisely alike, we do not believe this similarity to have originated except from a common principle independent of them; and that we recognize this likeness, chiefly by the identity of their deportment under similar circumstances, strengthens rather than weakens the conclusion.” If, then, we, with this eminent writer, judge things to be alike, “by the identity of their deportment under similar circumstances,” then, by this rule, we must judge the all-powerful atoms of this omnipresent substance to be *alike*; for in whatever deportment of nature we recognize the vast and powerful operations of this widely diffused substance, we also recognize the most perfect “identity of deportment under similar circumstances.” Now, does this *exact likeness* thus recognized as obtaining between these widely-separated particles “effectually destroy the idea” of their *eternal self-existence* as Herschel asserts? This is the legitimate consequence—the ultimate bearing of the arguments and conclusions of not only this celebrated author, but of many others who have adopted the same views. It would require an origin for all substances, the substance of the Deity not excepted.

An immense and endless quantity of substance is a necessary and essential condition to its *omnipresence*. Also this immense substance must be divisible, separable, and

* See Herschel on the Study of Nat. Phil., Art. 26.

movable, as a necessary essential condition to the exercise of its powers. If there is an extensive "identity of deportment under similar circumstances" of the parts of this substance, we at once infer a like extensive *resemblance* of the sizes, shapes, and other characteristics of the parts themselves; and we also justly infer that this *likeness* or *resemblance* must have had an origin. We seek for this origin, not in the creation of substance, (for the Deity could not create his own substance) but in the *power* inherent in this substance of the Deity, already existing in immense quantities, that is, the power of manufacturing from itself such *definite sizes* and *forms*—such *exact likeness* and *similarity*—such *extensive sameness* of character as at present seems to exist.

15.—As all substances and forces are eternal, the probability is that they have eternally been engaged in some kind of operation. That the laws by which these forces act have been the same in all past ages is very improbable. If there were any necessity for these laws to be what they are, that necessity would render them eternal, but as they are laws given to govern substances that act voluntarily under the influence of wisdom, knowledge, and will, they can be changed at any time. The present laws of the universe may have existed, with trifling variations, for millions of years; and there may have been an infinite series of laws, each continuing for ages, and yet each differing from all the rest. If ever there were a period when the wisdom and knowledge of the materials of the universe were more imperfect than what they are under the present law, they would be unqualified to act under this law, and therefore they would act under an inferior law, such as they could understand. If we assume that some of the materials of nature, have been eternally all-wise and all-intelligent, then they could have eternally acted according to the best laws, so far as their own substances were concerned; but if we assume that many of the materials, instead of possessing great wisdom and knowledge, only possessed the capacities for receiving intelligence, and had to be taught and instructed by experience, then the laws devised for their rule of action would be at first extremely simple, and as they advanced in experience these laws would be changed for those of a higher order, proportioned to their increased wisdom and knowledge; and, as countless ages rolled along they would at length attain to all that fulness of wisdom and intelligence which characterizes all their present operations. But shall we stop here, and suppose all the materials of the universe have ascended to the highest scale of perfection? Shall we suppose that they have now come to a stopping place, beyond which they can never advance? No: there are other laws of action in which they must be schooled, and other spheres of a higher and more glorious order, in which they must learn experience; and thus as endless ages shall open new glories, and new laws, and new modes of action, they will progress in the grand, universal, and eternal scale of being.

With this view of the subject, it is not necessary to suppose that the different materials of nature have possessed the same intelligence from eternity that they now have. Their capacities for receiving intelligence must have been eternal, but the intelligence may have been imparted at any time when circumstances favored. One of the first and most simple things which material particles had to learn, as we may suppose, was simply to exercise the force of cohesion, so that their infinitely small parts might be bound together in union; but this would require in all probability ages of experience before each part of an atom would learn how to press itself towards every other part with an equal degree of intensity, so as to preserve the forces in equilibrium; unless such an equilibrium of forces were obtained the atom could not remain at rest. Whenever an atom should desire to move in any particular direction, as for instance, to the south, with any particular velocity, it could do so, by destroying the equilibrium of forces existing in those parts of the atom which were in the line of the desired motion; let the north part of the atom press towards the centre with a greater intensity than the south part, and the atom would necessarily move towards the south with an accelerated velocity, whenever the desired velocity was obtained, let the equilibrium of forces be again restored, and the atom would ever afterwards continue to move with a uniform velocity until it should again act or be acted upon by some power or force. If the atom should desire to check its own velocity, or to come to a state of rest, it could do so, by the south side exerting a greater pressure than the north side: if an atom in motion should desire to change its direction, it

could do so with the greatest exactness, after having learned the principle of the composition of forces and motions; it could then regulate its simple forces, so as to produce the resultant force and motion in the desired direction.

16.—After a substance had passed through ages of experience in acquiring a knowledge of cohesion and motion, it would be qualified to begin to exert these elementary forces systematically, according to prescribed laws. The next thing, perhaps, in the great school of experience would be for one portion to form itself into an immense number of atoms of the same size and form, and for another portion to form itself into a vast number of atoms of another size and form, and in this way all the elementary atoms of nature could be formed out of the same substance; their difference of quality would depend, not upon the difference of the original substance, but upon the difference of their magnitude and form, and upon the difference of their hardness, depending upon the intensity of the cohesion of their parts. Thus might the elements of spirit, light, heat, electricity, oxygen, hydrogen, nitrogen, and of all other substances, be formed originally from one substance. These various atoms uniting by their own self-moving powers, according to prescribed laws, would form all the various compounds of nature with all their various properties. For instance, a definite proportion of oxygen uniting with a definite proportion of hydrogen, heat, light, &c., would form a molecule of water; and several molecules of water united with a certain intensity of cohesion would form a liquid; with less heat the molecules would crystallize and form a solid; with a greater amount of heat they would exist in the form of vapour. After substance has learned by experience all these operations, they would be qualified to act according to systematic laws, or those laws that are generally called chemical laws. And in like manner, after sufficient experience, they could learn to act according to the law of universal gravitation: that is, each particle could learn to move itself towards every other particle with a force varying according to the inverse square of the distance. But there are two things which intelligent substance never could learn: one is attraction, the other is repulsion; these, in all cases, are impossible modes of action. Substances, in order to attract or repel, would not only have to be in possession of almost an infinite knowledge, but, in addition to all this, would have to act where they were not present, and move all the worlds of universal space towards their own little selves.

It may be said, that different magnitudes and forms, and different degrees of hardness of the same kind of substance, would not be sufficient to account for the vast variety of qualities which substances exhibit. We reply, that experience teaches us that the combination of substances are constantly taking place, and that the compounds exhibit entirely different qualities from their constituent elements; indeed, different proportions of the same elements form compounds that differ widely from each other in their qualities. This is a positive demonstration that different magnitudes and forms, connected with different intensities of cohesion, are sufficient to produce new qualities out of the same kind of substance. If, then, the whole analogy of nature teaches us this, why should we refuse to extend the law to those substances which chemists call elementary? All substances have been already reduced to less than sixty kinds, which chemists term elementary, only because their imperfect experiments have not succeeded in decomposing them. Many bodies which, a few years ago, were considered elementary, have been resolved into simpler kinds; and we have no reason to suppose that we have as yet discovered even one elementary substance. If the process of decomposition were carried to its fullest extent, we should find, no doubt, that all the ponderable substances of nature, together with light, heat, and electricity, and even spirit itself, all originated from one elementary simple substance, possessing a living self-moving force, with intelligence sufficient to govern it in all its infinitude of combinations and operations, producing all the immense variety of phenomena constantly taking place throughout the wide domains of universal nature.

That portion of this one simple elementary substance which possesses the most superior knowledge, prescribes laws for its own action, and for the action of all other portions of the same substance which possesses inferior intelligence. And thus there is a law given to all things according to their capacities, their wisdom, their knowledge, and their advancement in the grand school of the universe. To every law

there are bounds and conditions set, and those materials that continue within their own sphere of action, and keep the law, are exalted to new spheres of action when they have served their appointed times; while those materials that have been refractory or disobedient will either remain stationary or be lowered and abased in the scale of being, till they learn obedience by the things they suffer.

17.—All the organizations of worlds, of minerals, of vegetables, of animals, of men, of angels, of spirits, and of the spiritual personages of the Father, of the Son, and of the Holy Ghost, must, if organized at all, have been the result of the self combinations and unions of the pre-existent, intelligent, powerful, and eternal particles of substance. These eternal Forces and Powers are the Great First Causes of all things and events that have had a beginning.

If the skilful arrangements and wise adaptations of the different parts of vegetables and animals to every other part indicate design, as that celebrated theologian Archdeacon Paley asserts, and if design, as he still further declares, implies a designer, and therefore, a beginning of those intricate arrangements and adaptations, then there must have been a designer or designers before any such arrangements and adaptations could exist. Paley also states, that the more perfect the being, the greater are the evidences of design; for instance, he considers that the complicated adjustments of each part to every other part, exhibited in the personage of man is a greater evidence of design than is manifested in any of the lower orders of being. If this be the case, then the spiritual personages of the Father, and of the Son, and of the Holy Ghost, must exhibit more evidences of design in the wise adaptations and arrangements of the different portions of substance of which they consist, than any other persons in existence, and to carry out Paley's argument, we are compelled to believe that these—the most superior of all other personages—must have had a beginning, for inasmuch as they indicate a design there must have been an anterior designer—this designer must have been a self-moving intelligent substance capable of organizing itself into one or more most glorious personages. We are compelled to admit that the personage of God must be eternal, exhibiting no marks of design whatever, or else we are compelled to believe that the all-powerful, self-moving substance of which he consists organized itself. But in either case, whether his person be eternal or not, His substance, with all its infinite capacities of wisdom, knowledge, goodness, and power, must have been eternal. It is this substance which is the Great First Cause; it is this substance which governs and controls all organization by wise and judicious laws. "Parts of this most glorious substance now exist in the form of personages; parts exist in an unorganized capacity, mingling more or less with all other things, forming a world here, and an animalcule yonder, governing a universe, and yet taking notice of the lowest orders of being, and imparting life and happiness to all. He is in all things and through all things, and the law by which all things are governed; and all things are not only by him and for him, but OF him. His majesty and power, His wisdom and greatness, His goodness and love, shine forth in every department of creation, with a glory that is ineffable, immortal, and eternal.

Wilton Street, Liverpool, Jan. 1, 1851.